from agriculture to other occupations. The total effect might be a declining birth rate. On the other hand, Mr. Roberts emphasizes the difficulty of working out population trends in a society where only some 30 per cent of households are based on legal marriage. He establishes the fact that fertility is highest in this group and in assessing the causes for the lower level of fertility in the less stable unions he takes into account the differential incidence of venereal disease. The control of this disease may result in a higher birth rate or at least a maintenance of the present rates. Taking all these factors into account, Mr. Roberts, in his first projection, assumes a constant fertility rate and he arrives at a population increase of 58 per cent within the twenty year period from 1951 to 1971.

Mr. Roberts bases his second projection on the existence of fertility controls; he argues that the very pressure of population will induce the promotion of measures to control population as a matter of public policy. He also takes into account a moderate degree of emigration. The population increase on this basis amounts to 36 per cent for the twenty years from 1951 to 1971.

These are formidable figures when it is realized that Jamaica is an island of some 4,410 square miles, with few natural resources and which has so far failed to attract much outside capital for industrial development; the bauxite mines add to the Government's revenue but provide comparatively little employment. There is already a serious unemployment situation which is likely progressively to worsen as the number of potential workers grows.

This brief review provides but a scant indication of the wealth of material found in Mr. Roberts' book; the seriousness of the situation seems to be constantly in his mind as he builds up his statistical evidence. This review may suitably end with a quotation. Mr. Roberts states: " As the island completes its third century of British rule it stands poised, apparently for population growth on a scale greater than anything it has experienced in the past." No one after reading Mr. Roberts' book can claim to be unaware of the grave seriousness of the situation.

GERTRUDE WILLOUGHBY.

Glick, Paul C. *American Families.* New York, 1957. John Wiley; (London, Chapman and Hall). Pp. xiv + 240. Price 48s.

THIS book has the sub-title " A demographic analysis of census data on American families at mid-century," and is one of the Census Monograph Series sponsored by the Social Science Research Council and the Bureau of the Census. Written by a member of the staff of the Bureau, it has some of the characteristics of an official report on the 1950 enumeration of the United States. Nevertheless, personal authorship, and the inclusion of other relevant data besides those of the census, have created a freer atmosphere than that which would have surrounded a completely official document, and the result is a more readable text.

It is important to comprehend what is implied by the use of the word " family " in this kind of analysis. It means a group of relatives living together. It is thus not confined to father, mother and children—sometimes termed the " biological family " —but may include grandparents, aunts, cousins and adopted children. In fact, it is shown that married couples constitute only about two-thirds of all households, and married couples with dependent children and no other relatives represent only about 40 per cent of all family groups. The book thus discusses the extent to which related people live together, a function of social and economic structure as much as of demographic composition.

In spite of the broad definition of a " family " that has been adopted by the author, and the consequent impossibility of paying close attention to the study of fertility, there is very much of demographic significance in the volume; this is especially so because the data reflect the major transition that has occurred in recent years in the attitude of many Americans towards the home. Particular stress is laid on what is

called the " life cycle " of the family, that is, the various stages in its formation and dissolution. Attention is paid to the effects of divorce and re-marriage and the changes that occur with advancing age. Regional variations and differences between whites and non-whites are of much interest in these connections. The census statistics also permit of analysis according to occupation, income level and educational status. Perhaps because of this wealth of alternative classifications no attempt has been made to identify any social or socio-economic classes such as have been separated in British censal studies.

The result of treating as the essential demographic unit not the individual but the family group is that sufficient knowledge of its characteristics is gained to permit the making of projections of trends in family formation into the future. The book contains some forecasts relating to households which will no doubt be of considerable importance in the forward planning of the American economy. It concludes with a helpful summary, a full bibliography and some excellent notes on sources, definitions and technical processes.

P. R. C.

PHYSIOLOGY

Heuse, Georges, A. *La Drépanocytose. État actuel de la récherche et contribution à la biologie des noirs sicklémiques.* Marseilles, 1957. Editions " Médecine Tropicale." Pp. 52. Previously published in *Médecine Tropicale,* No. 6, 1956, Pp. 759-785 and No. 1, 1957, Pp. 28-46.

THE hæmoglobinopathies are conditions in which there is an inherited inability to produce the usual amount of normal adult hæmoglobin (hæmoglobin A). They can be divided into two major groups. The first is that where the two genes responsible for the production of hæmoglobin A are both present but cannot find expression in the phenotype because there has also been inherited another gene which affects the synthesis of the hæmoglobin A molecule. As the hypochromic anæmia resulting from this failure of hæmoglobin metabolism was first discovered in Mediterranean populations, the condition was called thalassæmia. The second group comprises those hæmoglobinopathies where one or both the genes responsible for the production of hæmoglobin A are replaced by genes for the variants of hæmoglobin A. The first such hæmoglobinopathy to be discovered was the sickling condition where abnormally shaped cells (sickle-cells) may be found in the bloodstream or produced *in vitro* on the addition of reducing agents. The heterozygote for the genes for hæmoglobin A and the sickle-cell hæmoglobin (hæmoglobin S) is the " sickle-cell trait carrier " who possesses both hæmoglobin A and hæmoglobin S. The homozygote for the sickling gene possesses no hæmoglobin A at all and usually suffers from sickle-cell anæmia. Reduced hæmoglobin S is much less soluble than reduced hæmoglobin A, hence when the oxygen tension in the tissues is low, hæmoglobin S tends to form gels (tactoids) resembling crystals and these distort the cell envelope and give the cell the bizarre outline of the " sickle-cell." The abnormally shaped cells tend to be selectively trapped in the spleen where they are destroyed and sickle-cell anæmia is the result. Furthermore, sickled cells alter the viscosity of the blood; the more the bloodstream slows down the more oxygen will be taken up by the surrounding tissues and the more sickle-cells will be formed. These will then accumulate in small blood vessels causing vascular occlusions.

There have been numerous reviews on the sickling condition but so far, with the exception of an excellent paper by Vandepitte, there has been no comprehensive review in French. This deficiency has now been made good by the publication of Dr. Heuse's lecture *La Drépanocytose* which was given in June 1956 before the Société d'Anthropologie in Paris.

In addition to the discussion of the sickling condition, the author reviews the variants of hæmoglobin A discovered since (hæmoglobins C, D, E, etc.) and the multiple animal hæmoglobins. The lecture is well